

of the Sierras conditions are quite different; the rate of increase, from Fordyce Dam to Summit drops to 4 inches for every 100 feet of increase in elevation, or about 22 per cent of the rate for the east slope of the range. This remarkably small rate of increase in snowfall may be due to the fact that both Fordyce Dam and Summit are on the windward, or wet side on the mountains; at any rate, no better explanation suggests itself to the writer at the present time. Similar comparisons of increase of snowfall with altitude for other parts of the United States would doubtless prove very interesting to students of meteorology.

The distribution of the seasonal snowfall *by months* is shown in Table 3. As a rule, the heaviest snows occur in all watersheds in January. During the first three months of the season we may expect about 81 per cent of the total snowfall in the Truckee-Tahoe Basin; 84 per cent in the Carson, and 84 per cent in the Walker Basins. It will be seen that so far as run-off is concerned, the snows of the latter half of the season are of but little consequence, particularly the snowstorms of April and May. Not only is the snow less deep in the southern basins, but it disappears earlier than in the Truckee-Tahoe Basin.

TABLE 1.—Comparative snowfalls in the Tahoe, Carson, and Walker watersheds, 1909-1916.

STATIONS OF THE THREE BASINS.

Tahoe Basin:  
Tahoe, Cal. (6,230 feet).  
McKinney, Cal. (6,230 feet).  
Marlette Lake, Nev. (7,900 feet).  
Bijou, Cal. (6,230 feet).  
Carson Basin:  
Markleville, Cal. (5,525 feet). } Close to headwaters.  
Woodfords, Cal. (5,634 feet). }  
Walker Basin:  
Bridgeport, Cal. (6,500 feet). } Close to headwaters.  
Shields Ranch near Coleville, Cal. (5,300 feet). }

(Seasonal snowfalls, Dec. 1 to May 31, incl.)

Season.	Tahoe Basin (4 stations).		Carson Basin (2 stations).		Walker Basin (2 stations).	
	Mean.	Per cent of aver- age.	Mean.	Per cent of aver- age.	Mean.	Per cent of aver- age.
	Inches.		Inches.		Inches.	
1909-10.....	326	137.3	86	80.4	50	78.1
1910-11.....	150	64.4	144	134.6	94	146.9
1911-12.....	203	87.1	62	57.9	59	80.9
1912-13.....	232	99.6	78	72.9	40	62.5
1913-14.....	190	81.5	102	95.3	54	84.4
1914-15.....	304	130.5	120	112.1	53	82.8
1915-16.....	233		160	149.5	122	190.6
Average.....	233		107		64	

TABLE 2.—Increase in snowfall with elevation.

Stations and basins.	Altitude.	Distance between stations and direction.	Average annual snowfall.	Increase of snowfall with elevation.
Walker Basin:	Feet.	From Shields Ranch.	Inches.	In./100 ft.
Shields Ranch, Cal.....	5,300		37	18
Tamarack, Cal.....	8,000	18 miles W.	521	18
Truckee and Tahoe Basins:		From Summit.		
Reno, Nev.....	4,532	25 miles NE.	30	16
Boca, Cal.....	5,635	14 miles NE.	152	18
Truckee, Cal.....	5,818	8 miles E.	195	19
Summit, Cal.....	7,017		420	19
Sacramento and Yuba Basins:		From Fordyce Dam.		
Fordyce Dam, Cal. <sup>1</sup> .....	6,500		402	4
Summit, Cal.....	7,017	9 miles SE.	420	4

<sup>1</sup> Fordyce Dam, Cal., is in latitude 39° 23' N., longitude 120° 29' W.

TABLE 3.—Monthly snowfalls.

Watershed.	Decem-ber.	Janu-ary.	Febru-ary.	March.	April.	May.
Truckee-Tahoe:						
Average snowfall (inches).....	33	116	37	29	13	5
Percentage of seasonal.....	15	50	16	12	5	2
Carson:						
Average snowfall (inches).....	13	55	23	10	4	2
Percentage of seasonal.....	12	51	21	10	4	2
Walker:						
Average snowfall (inches).....	11	28	15	7	2	1
Percentage of seasonal.....	17	44	23	11	3	2

MEAN LAKE LEVELS DURING NOVEMBER, 1916.

By UNITED STATES LAKE SURVEY.

[Dated: Detroit, Mich., Dec. 5, 1916.]

The following data are reported in the "Notice to Mariners" of the above date:

Data.	Lakes.			
	Superior.	Michigan and Huron.	Erie.	Ontario.
Mean level during November, 1916:	Feet.	Feet.	Feet.	Feet.
Above mean sea level at New York.....	603.50	580.64	571.70	245.65
Above or below—				
Mean stage of October, 1916.....	-0.22	+0.08	-0.20	-0.41
Mean stage of November, 1915.....	+0.69	+1.16	+0.25	+0.71
Average stage for November, last 10 years.....	+1.07	+0.49	-0.06	+0.13
Highest recorded November stage.....	-0.01	-2.25	-1.97	-2.17
Lowest recorded November stage.....	+2.00	+1.46	+1.00	+2.24
Average relation of the November level to—				
October level.....	-0.2	-0.3	-0.3	-0.2
December level.....	+0.2	+0.1	+0.1	+0.1